

Title (en)
Electron emitting structure and manufacturing method.

Title (de)
Elektronenemittierende Struktur und Herstellungsverfahren.

Title (fr)
Structure pour émettre des électrons et procédé de fabrication.

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Application
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Abstract (en)
A field emitter includes an electron emitting structure (112) spaced from an anode structure (114), with the intervening gap (113) being substantially evacuated. The electron emitting structure (112) includes a first electrically conductive layer (128) spaced by an insulating layer (130) from a second conductive layer (132), and a generally circular aperture (134) disposed through the layers (128,132). The anode structure (114) includes an electrically conductive layer (142). Electrostatic forces, provided from a potential applied between the first conductive layer (128) and the anode structure (114), cause an electron beam to be drawn from a cathode provided by a peripheral edge portion (127a) of the first conductive layer (128) within the aperture (134) onto an adjacent surface portion of the anode structure (114). Such field emission occurs under the control of a potential applied between the first and second conductive layers (128,132) of the electron emitting structure with the second conductive layer (132) functioning as a control electrode of the emitting structure. The anode structure (114) has a phosphor layer (144) which converts the electrical energy from the electron bombardment into visible light energy. In one embodiment (Fig. 6), a potential applied to a third conductive layer (360) of the emitting structure (312) serves to focus the electron stream on the anode structure (314). Methods of manufacturing the electron emitting structures employ successive steps of layer deposition and subsequent selective etching. <IMAGE>

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